

REMARKS

Claims 1-18, 20-21, and 23-33 are currently pending. Applicants reserve the right to pursue the subject matter of these canceled claims at a later date.

Rejections Under 35 U.S.C. §103

Claims 1-8, 14-18, 20, 21, and 23-31

Claims 1-8, 14-18, 20, 21, and 23-31 are rejected as being unpatentable over Kuipers I in view of Domanico since allegedly it would have been obvious to use a zwitterionic detergent in the putative method of Kuipers I. See Office Action at pages 3-6. The Examiner contends that Kuipers I teaches a method of isolating Chlamidya genomic DNA by treating synovial fluid with proteinase K and either an ionic or a nonionic detergent, addition of CTAB, addition of a solid support, and elution of the DNA from the support. See Office Action at page 3. The examiner specifically cites methods 3b, 3c, 4b and 4c and the text describing those four methods as the basis for this assertion. *Id.*

The Examiner concedes that Kuipers I does not disclose a zwitterionic detergent or a chaotrope. To overcome these deficiencies, the Examiner alleges, *inter alia*, that Domanico taught the use of zwitterionic detergents and chaotropes in a lysis buffers for DNA isolation procedures. The Examiner therefore concludes that it would have been obvious to use a zwitterionic detergent in the putative method of Kuipers I because, the Examiner asserts, Domanico taught that zwitterionic detergents could be used in DNA isolation procedures. See Office Action at pages 4-6. Applicants respectfully disagree and traverse this rejection.

To establish a prima facie case of obviousness, three basic criteria must be met.

First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See MPEP § 2142.

Applicants note that the each of the four methods of Kuipers I cited by the Examiner comprise an organic extraction step and neither method 3b nor 3c include the addition of a solid support or the elution of DNA from that support. The current claim language of Claim 1 recites forming a combination comprising at least one protease, at least one zwitterionic detergent and the sample and "exposing the *combination* to at least one solid phase ...". See Claim 1 (emphasis added). Applicants respectfully assert that the methods of Kuipers I does not teach or suggest this limitation of Claim 1. Methods claims 2-8, 14-18, 20 depend either directly or indirectly on Claim 1. Applicants also respectfully assert that this deficiency of Kuipers I is not overcome when combined with Domanico.

In addition, Kuipers' teachings include Proteinase K and non-ionic detergent. These two cannot be combined with chaotrope solution because they do not result in DNA recovery by binding to solid matrix as demonstrated in Fig 2 of our application. For it to work, samples lysed in Proteinase K and non-ionic detergent, Kuiper teaches DNA

extraction by gel filtration or phenol/chloroform extraction. Chaotrope was not mentioned here (Kuiper's Methods 4a, 4c).

When Kuiper used proteinase K with ionic detergents CTAB (Methods 3b, 4b) and SDS (Methods 3a, 3b), the reference teaches extracting the DNA with organic solvents phenol/chloroform and NOT combine it with chaotrope. It is a common knowledge that ionic detergents and chaotropic solutions are not compatible because the ionic detergents would precipitate out of solution.

Domanico stated that the compositions could be used for preferential isolation of high-molecular weight nucleic acids but it is not clear how. All the modifications suggested by Domanico does not include the use of Proteinase K nor combinations of Proteinase K and zwitterionic detergents or Proteinase K, zwitterionic detergents and chaotrope. Moreover, host cells mentioned in paragraph 30 page 20 in the reference(Domanico) refers to cells including mammalian cells that harbor extrachromosomal DNA such as plasmid DNA. With Domanico's suggestion, these host cells will gently lyse preferentially releasing and isolating the low molecular weight nucleic acid, for example plasmid DNA (paragraphs 41 & 42). Dominaco, even if he suggests the use of zwitterionic or nonionic detergents with or without chaotrope, does not provide solutions to isolating high molecular weight, chromosomal DNA present in the nucleus.

Substituting the nonionic detergent in Kuiper's method with zwitterionic detergent taught by Domanico will not make Kuiper's method work. Applicants assert that the Office has not established a prima facie case of obviousness. Thus, withdrawal of the rejection is respectfully requested.

Claims 9-13

Claims 9-13 are rejected as being unpatentable over Kuipers I and Domanico and further inview of Gautsch et al (US Patent 6,235,501),

Claims 9-13 are drawn to additional cationic detergent in the method. The prior art does not teach the steps that the instant application claimed. The rebuttal to the first two references is stated above. As noted above, the combination of Kuipers I and Domanico does not teach or suggest "exposing the combination" to at least one solid phase. Rather, the alleged methods of Kuipers I cited by the Examiner each comprise an intermediate organic extraction step. The examiner stated that "Gautsch taught the use of CTAB in lysis methods... but Gautsch did not teach any organic extraction of the CTAB-containing lysate prior to application to the solid phase." Page 7 Office Action. The examiner failed to provide motivation for omitting the extraction step. It is a hindsight statement by suggestion of "saving time and reagents" to skip the organic extraction step. There is no suggestion in the primary references for such combination and one of the skilled in the art will not be motivated to apply the material to the solid phase without the instant invention. Applicants respectfully request that this rejection be reconsidered and withdrawn.

Claims 21 and 23-31

With respect to kit claims 21 and 23-31, the Examiner asserts that it would have been obvious to create a kit comprising the elements Kuipers I, as modified by Domanico. See Office Action at page 6. Applicants respectfully traverse this rejection.

None of pending Claims 21 and 23-31 includes phenol/chloroform, ethanol, or chloroform, in contrast to the alleged teachings of Methods 3b, 3c, 4b, and 4c of Kuipers

I, cited by the Examiner. See Office Action at page 3. Applicants respectfully assert that the person of skill in the art would not be motivated to combine the components of the cited methods of Kuipers I, including organic one or more organic solvents, even as modified by Domanico, to obtain the Applicants kits. Further, other than an unsubstantiated assertion, the Examiner has provided no evidence that the person of ordinary skill would be motivated to assemble a kit comprising the experimental reagents of Kuipers I and/or Domanico. For at least these reasons, Applicants believe that this rejection is improper and request that the Examiner withdraw the rejection.

Claims 21 and 23-31 are rejected as allegedly being unpatentable over Domanico. See Office Action at pages 6. The Examiner contends that Domanico taught a method for isolating nucleic acid using a lysis colution comprising guanidine hydrochloride, guanidine thiocyanate, N-decyl-N,N-dimethyl-3-ammonio-1-propanesulfonate and binding the nucleic acid to a solid matrix. See Office Action at page 6. The kit of claim 21 comprises at least one protease. Applicants respectfully assert that Domanico neither teaches or suggests the use of one or more protease in the lysis solution, thus the kit of Claim 21 is not rendered obvious by the alleged teachings of Domanico . Claims 23-31 depend on claim 21, either directly or indirectly. In light of the foregoing, reconsideration and withdrawal of the rejection is respectfully requested.

Claims 32 and 33

Claims 32 and 33 are alleged unpatentable over Kuipers I and Domanico, as the Examiner has applied these two references to claims above. The Examiner further relies on Kuipers et al. (Arthritis and Rheumatism (1998 Oct) Vol. 41, No. 10, pp. 1894-

5) ("Kuipers II") because, the Examiner asserts, Kuipers II taught detecting Chlamydia gDNA from peripheral blood leukocytes. Applicants respectfully traverse this rejection.

As noted above, the combination of Kuipers I and Domanico does not teach or suggest "exposing the combination" to at least one solid phase. Rather, the alleged methods of Kuipers I cited by the Examiner each comprise an intermediate organic extraction step. This deficiency is not overcome by Kuipers II. Applicants respectfully request that this rejection be reconsidered and withdrawn.

Obviousness-type Double Patenting Rejections

Claims 1-3, 5-12, 14, 15, 17-19, and 21-30 are rejected as allegedly being unpatentable over claims 1-64 of U.S. Patent No. 6,762,027 (the '027 patent). Applicants respectfully request that this rejection be held in abeyance until patentable subject matter has been identified.

CONCLUSION

Applicants believe that the application is now in condition for allowance and respectfully request issuance of a Notice of Allowance. If the Examiner does not consider the application to be in condition for allowance, Applicants request that he call the undersigned at (760) 931-6676 to set up an interview.

PETITION FOR EXTENSION OF TIME AND FEE AUTHORIZATION

A petition for a Three-Month Extension of Time is being transmitted concurrently.

Should any extension of time and/or fee be necessary for timely submission of this paper, such extension of time is hereby requested. The Commissioner is authorized to charge **Deposit Account No. 01-2213 (Order No. 5063)**. Any deficiency or overpayment should be charged or credited to this deposit account.

Respectfully submitted,

Date: July 11, 2007

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